

When we see all these various simple organizations engaged in rapid development and progressive growth at the expense of the fluid cell-contents, we are led to the supposition that, under such conditions, this cell-juice cannot be of exactly the same nature in the different regions of the cell, but that the fluid occupying the periphery of the cell-cavity, and secreted by the assimilative cell-membranes, will be physically and chemically different from that surrounding the vesicles which assimilate the nitrogenous compounds, and, again, that it will be differently constituted in the vicinity of those which appropriate compounds rich in carbon.

It is only by this supposition that a movement of the cell-juice appears to be explicable. This is the movement which was discovered by Corti in 1774, and which we must still regard as wonderful so long as we do not recognize the true nature of the cell-contents, but believe that the cell-juice separates into a denser and a thinner portion, that the latter is diffused through the former in the shape of drops, and that the denser mucilaginous fluid circulates between the watery drops without mixing with them! This would be to transfer to the cell Grew's notion of the structure of the tissue of plants, which, after the lapse of 200 years, has fortunately been overthrown.

There is, however, no doubt that the mucoid filaments by which the nucleus appears to be suspended are the fluid and frequently granularly mucilaginous contents of the tissue-cell, moving gently among colourless, non-nucleated cells. The form of these filaments is therefore equally variable with that of the cells themselves. With the increasing enlargement of the two daughter cells produced in the cell-nucleus, or of the two large colourless secretion-cells from the ends of the cell towards its middle point, this system of filaments changes continually, and thus indicates the changes which are taking place in the otherwise recognizable cells of which they occupy the interspaces.

[To be continued.]

IV.—*Descriptions of Seven new Species of East-Indian Spiders received from the Rev. O. P. Cambridge.* By JOHN BLACKWALL, F.L.S.

Tribe Octonoculina.

Family LYCOSIDÆ.

Genus SPHASUS, Walck.

Sphasus lepidus.

Length of the female $\frac{1}{3}$ rd of an inch; length of the cephalo-

thorax $\frac{1}{8}$; breadth $\frac{1}{12}$; breadth of the abdomen $\frac{1}{10}$; length of an anterior leg $\frac{2\frac{2}{8}}$; length of a leg of the third pair $\frac{1}{3}$.

The cephalothorax is somewhat compressed before, rounded on the sides, glossy, convex, particularly in the posterior region, with a slight indentation in the medial line, and some short, strong, black hairs on each side of its base; it is of a yellowish-red colour, a fine black line extending from each eye of the anterior pair to the frontal margin, which has a dark brown spot on each exterior angle. The falces are powerful, subconical, and vertical; the maxillæ are long, obliquely truncated at the extremity, on the outer side, and slightly inclined towards the lip, which is broader towards the extremity than at the base, and truncated at the apex; the sternum is heart-shaped, and thinly clothed with short, light-coloured, and long, erect, brownish hairs; the legs are slender, and provided with hairs and long spines; the first pair is the longest, then the fourth, and the third pair is the shortest; each tarsus is terminated by three claws; the two superior ones are curved and pectinated, and the inferior one is inflected near its base; the palpi are short, and have a curved pectinated claw at their extremity. These parts have a dull yellowish hue; a black line extends along the inferior surface of the femoral joint of the legs, those on the femora of the posterior pair being the least conspicuous; and a fine longitudinal line of the same hue occurs on each falx in front, which lines appear like a prolongation of those on the frontal margin. The eyes are seated on black spots on the anterior part of the cephalothorax; the four posterior ones form a strongly curved transverse row, whose convexity is directed backwards, each lateral eye being placed on a minute tubercle; the other four describe a trapezoid whose shortest side is before; the posterior eyes of the trapezoid are the largest, and the anterior ones much the smallest of the eight. The abdomen is oviform, somewhat pointed at the spinners, convex above, and projects a little over the base of the cephalothorax; it is of a yellowish-grey colour, finely reticulated with pale brown; a brown band extends along the middle of the upper part to the anus, having a minute point on each side, near its anterior extremity, which is the darkest; the sides are marked with oblique dark brown lines, more or less confluent, which are most conspicuous on their posterior half; and a broad band of the same hue, having whitish scale-like hairs on each side of it, extends along the middle of the under part, and tapers to the spinners; the posterior margin of the sexual organs, which are well developed, is prominent, but obtuse, and their colour is brownish black, that of the branchial opercula being dull yellow.

Family THOMISIDÆ.

Genus THOMISUS, Walck.

Thomisus tuberosus.

Length of the female $\frac{2}{3}$ ths of an inch; length of the cephalothorax $\frac{1}{6}$; breadth $\frac{3}{20}$; breadth of the abdomen $\frac{1}{3}$; length of an anterior leg $\frac{1}{2}\frac{1}{4}$; length of a leg of the third pair $\frac{1}{4}$.

The abdomen is somewhat depressed, broader at the posterior than at the anterior extremity, rather pointed at the spinners, and projects over the base of the cephalothorax; the upper part is of a pale olive-brown colour; the sides are marked with brownish black, which extends to the upper surface near its middle and anterior extremity; the under part is of a dull yellow hue, and is marked with four longitudinal rows of minute punctures, the two intermediate ones, which converge towards the spinners, being the most conspicuous; a broad, brownish-black mark, trifid at its extremity, and sending off a lateral branch immediately below each branchial operculum, occupies the middle space; the sexual organs are minute and of a dark reddish-brown hue, that of the branchial opercula being brown; on the upper part, sides, and front, there are about forty glossy tubercles, which differ in size and colour; three, situated on each side of the medial line, are disposed in pairs, the two intermediate ones being the largest and lightest-coloured; and immediately behind those of the anterior pair, which are oval and of a dark reddish-brown hue, there is a conspicuous pair of depressed spots; the largest tubercles constitute two pairs, united at their bases, situated on the upper part of the posterior half of each side, and below them there are two small ones of a dark reddish-brown hue; the prevailing colour of the tubercles is yellow-brown. The cephalothorax is large, convex, glossy, slightly compressed before, rounded on the sides, broadly truncated in front, depressed in the anterior and abruptly so in the posterior region, and is provided with minute tubercles in the medial line and on the sides; it is of a brown colour, a broad space extending along the middle having a yellowish tinge; the lateral margins and an irregular mark on each side of the medial line of the posterior slope have a yellowish-white hue. The eyes are disposed on the anterior part of the cephalothorax in two transverse curved rows, forming a crescent whose convex side is before; the lateral eyes, which are seated on tubercles, are larger than the intermediate ones, those of the anterior row being the largest of the eight. The falces are short, strong, cuneiform, and vertical; and the maxillæ are inclined towards the lip, and somewhat pointed at the extremity. These organs

are of a yellow-brown colour, the former, which are the paler, having an irregular, transverse, yellowish-white spot near their base. The lip is triangular, but rounded at the apex, and, with the heart-shaped sternum, is of a dark brown colour. The legs are provided with hairs and spines, two parallel rows of the latter extending along the inferior surface of the tibiæ and metatarsi of the first and second pairs, which are much longer and more robust than the third and fourth pairs; the first pair is rather longer than the second, and the third pair is the shortest; each tarsus is terminated by two curved pectinated claws; the coxæ have a dark brown hue; the femora, genua, and base of the tibiæ of the first and second pairs are of a pale yellowish-white colour, the femora of the former being marked on the upper surface, and those of the latter on the upper and under surfaces, with dark brown; the femora, genua, and base of the tibiæ of the third and fourth pairs have a yellow-brown hue, with a few dark brown marks on their upper and under surfaces; the anterior part of the tibiæ and the metatarsi of all the legs are of a brownish-black colour, and the dark brown tarsi have a yellowish-white hue at their base. The palpi are short, and have a small, curved, pectinated claw at their extremity; the humeral and cubital joints are of a yellow-brown colour, their under part and extremity having a yellowish-white hue; and the radial and digital joints are of a brown colour, the former being much the palest at its base underneath.

Genus PASITHEA, Blackw.

Pasithea elegans.

Length of the female $\frac{1}{2}$ an inch; length of the cephalothorax $\frac{1}{3}$, breadth $\frac{5}{10}$; breadth of the abdomen $\frac{1}{10}$; length of an anterior leg $\frac{9}{10}$; length of a leg of the third pair $\frac{1}{10}$.

The eyes are unequal in size, encircled with pale yellow hairs, and are disposed in three transverse rows on a slight black prominence situated at the anterior part of the cephalothorax, high above the frontal margin; two, constituting the anterior row, are much the smallest of the eight, and near to each other, but not in contact; the two largest form the intermediate row; and the other four constitute the posterior row, which is curved and has its convexity directed backwards; the entire group describes a sector of a circle whose radii converge towards the frontal margin. The cephalothorax is convex, broadly truncated in front, compressed before, and somewhat rounded on the sides, which are marked with slight furrows converging towards a narrow longitudinal indentation in the medial line; it is of a red-brown colour, and is clothed with brown-red and yellowish

hairs intermixed, and a dark brown spot occurs on each exterior angle of the frontal margin. The falces are long, powerful, subconical, inclining to cuneiform, and vertical; the maxillæ are enlarged where the palpi are inserted, truncated at the extremity on the outer side, and inclined towards the lip, beyond which they extend considerably; the lip is long, somewhat triangular, and notched at the apex; the sternum is heart-shaped; the legs are long, slender, and provided with hairs and long spines; the first pair is the longest, then the second, and the third pair is the shortest; the tarsi are terminated by three claws; the two superior ones are curved and pectinated, and the inferior one is inflected near its base; and the palpi, which are short, have a curved pectinated claw at their extremity. These parts are of a pale red-brown colour; the falces are the darkest, and the femur of each leg has two longitudinal brown lines on its inferior surface. The abdomen is long, slender, somewhat cylindrical, tapering to the spinners, and projects slightly over the base of the cephalothorax; it is densely clothed with short hairs, and the upper part, which is of a yellow-brown colour, bordered laterally by a red-brown line, is marked with numerous pale yellow streaks and spots symmetrically arranged, and disposed on similar streaks and spots either of a dark brown or of a red-brown hue; the colour of the under part is yellowish white; a large black band extends along the middle, whose anterior part comprises a short, longitudinal, yellowish-white streak; the sexual organs are highly developed, nearly circular, and of a dark reddish-brown colour, that of the branchial opercula being yellowish brown.

Family EPEIRIDÆ.

Genus GASTERACANTHA, Latr.

Gasteracantha frontata.

Length of the female $\frac{1}{4}$ th of an inch; length of the cephalothorax $\frac{1}{8}$; breadth $\frac{1}{10}$; breadth of the abdomen $\frac{7}{16}$; length of a posterior leg $\frac{7}{24}$; length of a leg of the third pair $\frac{5}{16}$. The abdominal spines are not included in the measurement.

The cephalothorax is somewhat quadrate, the sides being slightly rounded; the anterior part is thinly clothed with short hairs, abruptly elevated throughout its entire breadth, and has on its summit two glossy protuberances which are separated by a longitudinal furrow; and the posterior part is depressed, with a large indentation in the medial line; it is of a dark brown colour faintly tinged with red, the middle of the posterior part having a yellow-brown hue. The eyes are small, and situated immediately above the frontal margin; the four intermediate

ones nearly form a square, the two anterior ones, which are seated on a slight protuberance, being larger and rather nearer to each other than the posterior ones; the eyes of each lateral pair are placed apart on a tubercle, and are distant from the intermediate ones. The falces are short, subconical, very powerful, convex in front, vertical, glossy, and armed with teeth on the inner surface; the maxillæ are short, straight, and greatly enlarged and rounded at the extremity; the lip is semicircular, but pointed at the apex; and the sternum is heart-shaped, with prominences on the sides, opposite to the legs, and terminates in a point. These parts are of a dark brown colour faintly tinged with red, the extremities of the maxillæ and lip and a large spot at the anterior part of the sternum having a yellow-red hue. The legs are short, moderately robust, provided with hairs, and of a dark brown hue tinged with dull red, particularly at the base of the joints; the fourth pair is the longest, then the first, and the third pair is the shortest; each tarsus is terminated by claws of the usual number and structure. The palpi, which are short, resemble the legs in colour, and have a curved pectinated claw at their extremity. The abdomen is more than twice as broad as it is long, and has a transversely narrow oval form, with somewhat sinuous margins, and six strong, conical, horizontal, rugged, hairy, dark brown spines, two of which are situated at its posterior margin and two at each extremity of the firm, glossy, transversely oval dorsal shield or carapace; the two anterior spines are the smallest, and the two intermediate ones the largest of the six; between the two anterior spines there are ten depressions, constituting conspicuous red-brown spots, the four intermediate ones, which are the smallest, and nearly equal in size, forming a straight, transverse row, somewhat in advance of the rest; four similar spots in the middle are disposed almost in a square, the two posterior ones being the largest and rather the widest apart; between the two intermediate spines there are nine red-brown depressed spots; five, smaller than the rest, form a straight transverse row somewhat in arrear of the others, the intermediate one being much the smallest; the colour of the carapace is brownish yellow, and there is a spot between the two posterior spines, and a smaller one at the base of each, of the same hue; the under part is very convex, corrugated, marked with numerous depressions, and of a dark brown colour spotted with reddish yellow; the spinners are encircled by a prominent rim, and are of a dark brown colour; a bold conical prominence of the same hue occurs immediately before them, and there is a small, obtuse, glossy, yellow protuberance near the base of each branchial operculum.

Gasteracantha helva.

Length of the female $\frac{5}{10}$ ths of an inch; length of the cephalothorax $\frac{5}{20}$; breadth $\frac{1}{3}$; breadth of the abdomen $\frac{7}{4}$; length of a posterior leg $\frac{2}{5}$; length of a leg of the third pair $\frac{7}{4}$. The abdominal spines are not included in the measurement.

The abdomen is rather broader than long, and has somewhat the form of a trapezoid, the posterior side being the longest, and the anterior side much the shortest; it is provided with six strong, pointed, rugged, hairy, glossy, blue-black spines, each having a reddish-yellow streak on the under side extending from the base nearly half its length; two of the spines are situated at its posterior extremity, and two on each side of the carapace; the two anterior spines, which are the smallest and conical, are directed outwards and slightly upwards; the two intermediate ones, which are the largest, and nearly cylindrical, except at the point, are directed obliquely outwards and upwards; and the two posterior ones are conical and extended horizontally; the carapace is firm, glossy, and of a deep reddish-yellow colour; ten oval depressions, forming dark brown spots tinged with red, constitute a curved row near the lateral and frontal margins, the two lateral ones being the largest, and the two intermediate ones the smallest; four similar spots, but smaller and rounder, are situated in the middle, and almost describe a square, the two posterior ones being rather the widest apart; between the two largest spines there are ten depressions; the six intermediate ones form a slightly curved row whose convexity is directed forwards, and the two intermediate ones of the six are very minute and little conspicuous; the base of each posterior spine and the space between them have a deep reddish-yellow hue; the under part is very convex, greatly corrugated, marked with numerous depressions, and is of a dark brown colour spotted with deep reddish yellow; the spinners are encircled by a very prominent rim, and have a dark brown hue, and the sexual organs have a small, prominent, depressed, yellowish-brown process directed backwards from their posterior margin. The cephalothorax is somewhat quadrate, the sides being slightly rounded; the anterior part is abruptly elevated throughout its entire breadth, granulated, glossy, thinly clothed with whitish hairs, and has a longitudinal furrow in the middle; and the posterior part is depressed, with a large indentation in the medial line, and a smaller one on each side of it; it is of a brownish-black colour, the middle of the posterior part having a yellow-brown hue. The eyes are small, and situated immediately above the frontal margin; the four intermediate ones, which are seated on a protuberance, nearly form a square, the two anterior ones being larger and rather nearer to each other than the posterior

ones; the eyes of each lateral pair are placed apart on a tubercle, and are distant from the intermediate ones. The falces are short, very powerful, subconical, remarkably convex in front, protuberant near the base, towards the inner side, vertical, glossy, and armed with teeth on the inner surface; the maxillæ are short, straight, and greatly enlarged and rounded at the extremity; and the lip is semicircular, but pointed at the apex. These parts are of a brownish-black colour; the falces are the darkest, and the extremities of the maxillæ and lip have a yellow-brown hue. The sternum is heart-shaped, with prominences on the sides, opposite to the legs, and terminates in a point; it is granulated, supplied with long black hairs, and of a brownish-black colour, a transverse bar at its anterior part, two spots on each side, and one on the posterior point having a yellow hue. The legs are short, slender, provided with hairs, and of a reddish-yellow colour, with brown spots and streaks on the under surface of the femora, the upper surface of the genua and base of the tibiæ, and an annulus of the same hue at the base of the metatarsi and tarsi; the fourth pair is the longest, then the first, and the third pair is the shortest; each tarsus is terminated by claws of the usual number and structure. The palpi are short, of a brown-red hue, and have a curved pectinated claw at their extremity.

Genus NEPHILA, Leach.

Nephila ornata.

Length of the female $\frac{7}{8}$ ths of an inch; length of the cephalothorax $\frac{1}{2}$; breadth $\frac{1}{2}$; breadth of the abdomen $\frac{1}{2}$; length of an anterior leg $\frac{2}{3}$; length of a leg of the third pair $\frac{1}{2}$.

The eyes are seated on black spots on the anterior part of the cephalothorax; the four intermediate ones nearly form a square, the two anterior ones, which are on a protuberance, being smaller and rather nearer to each other than the posterior ones; the eyes of each lateral pair are placed obliquely on a prominent tubercle, and are near to each other, the anterior ones being much the smallest of the eight. The cephalothorax is compressed before, rounded on the sides, slightly convex, with an indentation in the medial line; it is of a brown colour, and is densely covered with short hairs having a silvery lustre. The falces are powerful, conical, vertical, armed with teeth on the inner surface, and have a dark brown hue. The maxillæ are straight, and are enlarged and rounded at the extremity, which has a brownish-yellow hue, that of the base being dark brown. The lip is semicircular, but pointed at the apex, and is of a pale yellow colour. The sternum is heart-shaped, with very conspicuous prominences on the sides, opposite to the legs, and termi-

nates in a point; it has a pale-yellow hue, with dark brown lateral margins. The legs, which are long, slender, and provided with hairs and a few spines, were so greatly mutilated, with the exception of those of the first and third pairs, that their relative length could not be satisfactorily determined; the tarsi are terminated by claws of the usual number and structure. The palpi are short, of a yellow hue tinged with brown, and have a curved pectinated claw at their extremity. The abdomen is of an oblong-oval form, moderately convex above, projecting a little over the base of the cephalothorax, and is somewhat prominent at its posterior extremity, above the spinners; the upper part, for more than a third of its length from the anterior extremity, is of a yellowish-white colour finely reticulated with brown, and is crossed by three transverse, slightly sinuous, dark brown bands, the intermediate one being rather the shortest and narrowest; these bands are succeeded by a broad, sinuous, dark brown band, of an orange-brown hue at its posterior margin, and comprising white spots of a silvery lustre, disposed transversely; a whitish band follows, having near its anterior margin a shorter, transverse, soot-coloured line; the posterior part, which has a dark brown hue, comprises white spots of a silvery lustre, and is crossed by two rather obscure, narrow, orange-brown bands, and a greatly curved, irregular, whitish one above the spinners; all the bands, with the exception of the second from the anterior extremity, are in contact with a fine, irregular, dark brown line extending along the upper part of each side; the sides have a yellow-brown hue, freckled with dull yellowish white, and spotted with dark brown in the posterior region; the under part is of a dark brown colour, with an irregular, longitudinal, whitish band, finely reticulated with brown, on each side; the space included between these bands, which is broadest and darkest at its posterior extremity, comprises in its anterior part six whitish spots disposed in pairs; the spinners have a reddish-yellow hue.

Though the specimen from which the foregoing description was made had not arrived at maturity, yet there can be little doubt of its specific distinctness.

GENUS TETRAGNATHA, Latr.

Tetragnatha decorata.

Length of the female $\frac{7}{20}$ ths of an inch; length of the cephalothorax $\frac{1}{10}$; breadth $\frac{1}{12}$; breadth of the abdomen $\frac{1}{8}$.

The abdomen is robust, subcylindrical, with an obtuse protuberance on each side of its anterior extremity, which projects greatly over the base of the cephalothorax, and terminates in a

large, obtuse, conical protuberance, slightly curved upwards, that extends considerably beyond the spinners; it has a bright silvery lustre; a black band extends along the middle of the upper part to the posterior conical protuberance, and is crossed at its anterior extremity by a broad strongly curved black band, within whose curvature there is a short transverse line of the same hue; on each side of the medial band a shorter, nearly parallel black band occurs; these bands, which commence near the extremities of the curved band, are connected anteriorly by a transverse black bar, laterally by four oblique lines of the same hue, diverging in pairs from the medial band, and posteriorly by converging till they meet; irregular longitudinal bands and short oblique streaks on the sides, and a space round the spinners, have a black hue, the last comprising four silvery spots disposed symmetrically about the spinners; the sexual organs are moderately developed, and of a dark reddish-brown colour, that of the branchial opercula being yellowish brown. The cephalothorax is small, slightly convex, glossy, compressed before, rounded in front and on the sides, with a large indentation in the medial line; the falces are short, powerful, very convex in front, rather divergent at the extremity, and armed with a dark, red-brown fang, and a few teeth on the inner surface; the maxillæ are divergent, and increase in breadth from the base to the extremity, which is somewhat angular on the outer side; the sternum is heart-shaped, with small prominences on the sides, opposite to the legs; the legs are long, slender, and provided with hairs and spines: those of the specimens from which the description was made were mutilated; but, from the relative length of the femora, it is evident that the first pair is the longest, then the second, and that the third pair is much the shortest; the palpi are short and slender. These parts have a yellow-brown colour. The lip is semicircular and prominent at the apex, which has a yellow-brown hue, that of the base being dark brown. The eyes are nearly equal in size, and are seated on black spots on the anterior part of the cephalothorax; the four intermediate ones form a square, and those of each lateral pair (which are placed on a minute tubercle near to each other, but not in contact) are rather the smallest of the eight.

V.—*Diagnoses of new Forms of Mollusks collected at Cape St. Lucas by Mr. J. Xantus. By PHILIP P. CARPENTER, B.A., Ph.D.*

[Concluded from vol. xiii. p. 479.]

37. *Mangelia subdiaphana.*

M. testa parva, subdiaphana, albida, interdum rufo-fusco pallide